

Missouri Water Summit 2011

Outcomes and Actions



Missouri Water Summit, December 1-2, 2011 Stoney Creek Conference Center, Columbia, Missouri

Underwritten by the Linnemeyer Trust
Organized by the Conservation Federation of Missouri
In Partnership with the National Wildlife Federation

Program Committee:
Conservation Federation of Missouri
DJ Case & Associates
Mahfood & Associates
Missouri Department of Conservation
Missouri Department of Natural Resources
Missouri Stream Team Watershed Coalition
National Wildlife Federation
Open Space Council
University of Missouri
The Nature Conservancy

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This document should be referenced:

Witter, D., R. Broz, A. Buechler, R. Coleman, J. Engeln, S. Fischer, G. Hoey, S. Mahfood, R. Mueller, D. Murphy, H. Neill, T. Sampsell, M. Schallon, and M. Van Patten, 2011. Missouri Water Summit 2011 Outcomes and Actions; underwritten by Linnemeyer Trust and organized by Conservation Federation of Missouri in partnership with the National Wildlife Federation. DJ Case and Associates, Mishawaka, Indiana, USA. 57 pp.

Executive Summary

Missouri Water Summit 2011 was held December 1-2, 2011, in Columbia, Missouri. The Summit was underwritten by the Linnemeyer Trust, and organized by the Conservation Federation of Missouri (CFM) in partnership with the National Wildlife Federation. Over 120 opinion leaders in the Missouri water community attended the Summit.

Missouri Governor Jeremiah “Jay” Nixon presented keynote remarks on December 1, and Justice Greg Hobbs, member of the Colorado Supreme Court and water expert, gave the keynote on December 2.

Two panels of water experts and administrators addressed separate but mutually relevant water topics on December 1:

- Toward a common understanding of Missouri water resources, and
- Challenges and opportunities affecting security and sustainability of Missouri’s water.

Most of December 2 was devoted to engaging Summit attendees in a facilitated small group exercise that resulted in identification and ranking of the most important actions on which Missourians can work together to meet Missouri’s water resource needs for each of the following uses:

1. Clean drinking water,
2. Water for recreation,
3. Water for municipal use/water systems,
4. Water for commerce/industry,
5. Water for fish & wildlife habitats,
6. Water for power generation,
7. Water for agriculture,
8. Clean groundwater,
9. Clean rivers, streams, and lakes, and
10. Flood management.

In order of priority, the top 10 actions identified by Water Summit attendees were:

1. Develop a simple, unified water awareness campaign that connects with all Missouri citizens.
2. Establish, incentivize, and evaluate best management practices, strategies, and water goals at the watershed level.
3. Build a sense of pride, emotional connection, and responsibility through a statewide clean water campaign with education.
4. Protect watersheds, riparian corridors, and flows through incentives that place a value on healthy water resources.
5. Invest in water resource planning, conservation, and efficiency at all geographic levels.
6. Strategically partner with industry and commerce to inform and educate citizens, trade leaders, political leaders, and business leaders to develop a combined water ethic on a watershed basis.
7. Increase efforts for water quality and quantity outreach and education (statewide campaign, reallocation of resources for outreach and education, charismatic water icon).
8. Develop a comprehensive/integrated statewide water plan.
9. Expand the floodplain and restrain development.
10. Recognize and showcase the environmental success of innovative farmers through a local community partnership-based approach (e.g., Farmers Teaching Farmers).

Post-Summit or next steps center on:

- CFM establishing a working group to;
 - Consolidate and refine as appropriate the foregoing actions, (incorporating other Summit outcomes as well), and
 - Develop strategies to implement these actions through existing or new initiatives of agencies and organizations.

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Missouri Water Summit 2011

The Missouri Water Summit 2011 was held December 1 and 2, 2011, in Columbia, Missouri. About 400 water opinion leaders in Missouri were invited to participate in the event; over 120 of the invitees registered.

Planning for the Water Summit originated in the outcomes of the 2009 Summit on the Future of Missouri Outdoors, in which participants identified water issues and opportunities among the top concerns that must be visited and revisited if Missouri is to have a quality outdoor environment 75 years hence.

More recently, an extraordinary opportunity to contemplate Missouri water needs was afforded when the Linnemeyer Trust and National Wildlife Federation (NWF) provided the Conservation Federation of Missouri (CFM) generous resources to pursue a Missouri Water Summit. From that point, CFM assembled an experienced program committee to create an informative and provocative agenda that ultimately would allow attendees to propose and prioritize the most important water-related actions for the future. Committee representation was:

- Conservation Federation of Missouri (Micaela Haymaker, Dave Murphy, Mike Schallon)
- DJ Case & Associates (Dan Witter),
- Mahfood & Associates (Steve Mahfood),
- Missouri Department of Conservation (Amy Buechler, Sherry Fischer, Mark Van Patten),
- Missouri Department of Natural Resources (Joe Engeln, Ryan Mueller),
- Missouri Stream Team Watershed Coalition (Holly Neill),
- National Wildlife Federation (Geraldyn Hoey),
- Open Space Council (Ron Coleman),
- University of Missouri (Bob Broz), and
- The Nature Conservancy (Todd Sampsell).

The Program Committee established the Summit Theme—

“Missouri’s Water Realities: Deepening our Water Wisdom and Mobilizing for Action,”

...as well as the Summit Vision—

“Meeting Missouri’s water resource needs through education and action.”

The theme and vision for the Summit program featured “action” as the keyword—certainly, informed and educated action that asks each of us to deepen our water wisdom and start from a solid and shared knowledge of Missouri’s water resources—but ultimately, *action*. The program agenda was intentionally inclusive, inviting water perspectives from agriculture, business and commerce, energy, municipal and household uses, and recreation and nature viewpoints.

As part of Summit preparations, the Committee determined to send a pre-Summit web survey to a sample of Missouri’s water resource opinion leaders.¹ Results of that survey constitute a stand-alone report on what opinion leaders in Missouri’s water management and conservation community—attentive citizens, water professionals, and scientists—think about the quantity and quality of water

¹ Survey results are available at www.confedmo.org, “Programs/Activities,” “Missouri Water Summit”

for today and tomorrow. Moreover, key survey findings were reported to Summit attendees in introductory remarks for the various parts of the Summit program.

The Summit Program

The Summit program (see Appendix A) was organized as follows:

On Thursday, December 1, from 1p.m. to 5:30p.m., attendees listened to presentations from:

- Governor Jeremiah “Jay” Nixon
- Panelists (“Toward a Common Understanding of Missouri Water Resources”)
 - Shane Barks, Deputy Director, USGS Missouri Water Science Center
 - Pat Guinan, State Climatologist, Missouri Climate Center, University of Missouri
 - Ryan Mueller, Director, Water Resources Center, Missouri Department of Natural Resources
 - Holly Neill, Executive Director, Missouri Stream Team Watershed Coalition
 - Jack McManus, Chief Counsel, Agriculture and Environment Division, Missouri Attorney General’s Office
- Panelists (“Challenges and Opportunities Affecting Security and Sustainability of Missouri’s Water”)
 - Mary West Calcagno, Water Market Principal, Jacobs Engineering Group Inc.
 - Jan Goldman-Carter, Wetlands and Water Resources Counsel, National Wildlife Federation
 - Davis Minton, Missouri Department of Agriculture Liaison to Missouri Department of Natural Resources
 - Barry Hart, Executive Vice President, Association of Missouri Electric Cooperatives
 - Sara Pauley, Director, Missouri Department of Natural Resources
 - Bob Ziehmer, Director, Missouri Department of Conservation

Each panelist was asked to organize their comments in a “5x5x5” format; that is, “5 big ideas” using “5 PowerPoint slides” (if desired), in “5 minutes.” Following these presentations, audience questions were invited by the panel moderator.

On Friday, December 2, from 8a.m. to 9:30a.m., attendees listened to a presentation from:

- Judge Greg Hobbs, Colorado Supreme Court Justice

Additionally, on Friday from 9:30a.m. til noon, attendees participated in facilitated small group exercises to identify the most important actions on which Missourians can collaborate in support of the state’s water resources. Steps in the small group exercise:

STEP 1: Attendees were asked to organize themselves into 10 discussion groups, each group with a central water theme:

1. Clean drinking water,
2. Water for recreation,
3. Water for municipal use/water systems,
4. Water for commerce/industry,
5. Water for fish & wildlife habitats,
6. Water for power generation,

7. Water for agriculture,
8. Clean groundwater,
9. Clean rivers, streams, and lakes, and
10. Flood management.

STEP 2: Each small group was asked to list obstacles to meeting Missouri’s needs for the water use under consideration.

STEP 3: Group participants were asked to identify actions on which Missourians can work together in support of that water use.

STEP 4: Group members were asked to prioritize these actions.

STEP 5: Following lunch, attendees reconvened as a large group, and results of small group deliberations were reported.

STEP 6: The top 2 actions identified by each of the 10 small groups were consolidated (for a total of 20 actions), and attendees rated the priority of these.

Throughout the Summit, attendees answered questions using TurningPoint technology. TurningPoint is proprietary software and hardware that interfaces with Microsoft PowerPoint, allowing each participant to register their answer anonymously using a keypad that sends a signal to PC-based receiver. TurningPoint automatically tallies this input, and instantaneously projects poll results as a PowerPoint slide. Questions posed to attendees related to key water issues, opportunities, and priorities, but also assessed selected demographic characteristics of Summit attendees, allowing participants to better understand the composition of the Summit audience.

TurningPoint Results

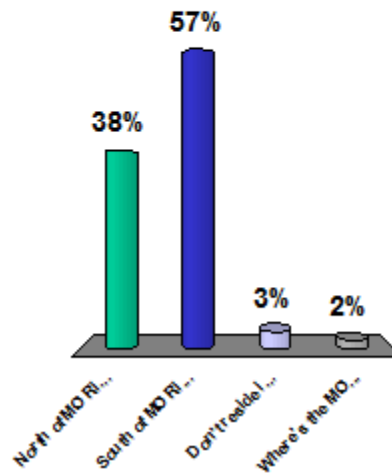
Following the presentation by Governor Jay Nixon, Summit attendees were asked the following questions using TurningPoint slides. Graphics are those created automatically by TurningPoint software, while the tables are created after importing TurningPoint text files into SPSS 20.

How much do you approve/disapprove of Un of MO move to SEC?

Icebreaker		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly approve	7	5.6	5.9	5.9
	Mildly approve	14	11.2	11.9	17.8
	No opinion	37	29.6	31.4	49.2
	Mildly disapprove	18	14.4	15.3	64.4
	Strongly disapprove	24	19.2	20.3	84.7
	What's the SEC?	18	14.4	15.3	100.0
	Total	118	94.4	100.0	
Missing	System	7	5.6		
Total		125	100.0		

In Missouri, do you reside north or south of the Missouri River?

1. North of MO River
2. South of MO River
3. Don't reside in MO
4. Where's the MO River?

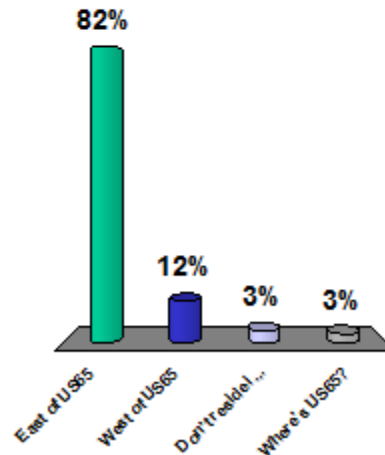


Do you live North or South of MO River?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	North	45	36.0	37.8	37.8
	South	68	54.4	57.1	95.0
	Don't reside in MO	4	3.2	3.4	98.3
	Where's the MO River?	2	1.6	1.7	100.0
	Total	119	95.2	100.0	
Missing	System	6	4.8		
Total		125	100.0		

In Missouri, do you reside east or west of U.S. Highway 65?

1. East of US65
2. West of US65
3. Don't reside in MO
4. Where's US65?



Do you reside east or west of US65?

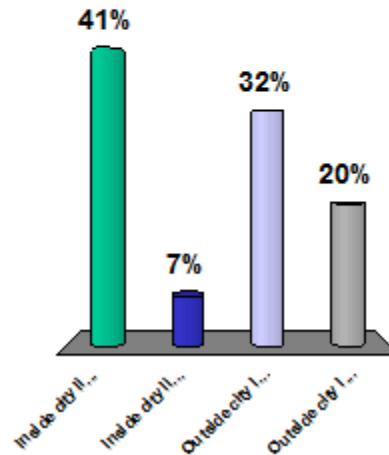
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	East	97	77.6	82.2	82.2
	West	14	11.2	11.9	94.1
	Don't reside in MO	4	3.2	3.4	97.5
	Where's US65?	3	2.4	2.5	100.0
	Total	118	94.4	100.0	
Missing	System	7	5.6		
Total		125	100.0		

Of those Summit attendees living north of the Missouri River (44), nearly all (93%) lived east of U.S. Highway 65; of those living south of the Missouri River (66), a majority (77%) lived east of US65, though 18% said they lived west of this major divide (below).

Reside North or South of MO River?	Reside east or west of US65?						
	East	West	Don't reside in MO	Where's US65?	Total		
North	93%	5%	0%	2%	44	38%	
South	77%	18%	2%	3%	66	57%	
Don't reside in MO	25%	0%	75%	0%	4	3%	
Where's the MO River?	100%	0%	0%	0%	2	2%	
Total	82%	12%	3%	3%	116	100%	

In Missouri, do you live....?

1. Inside city limits, not engaged in farming
2. Inside city limits, engaged in farming
3. Outside city limits, not engaged in farming
4. Outside city limits, engaged in farming



Do you live:

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Inside city limits, not farming	48	38.4	41.0	41.0
	Inside city limits, farming	8	6.4	6.8	47.9
	Outside city limits, not farming	38	30.4	32.5	80.3
	Outside city limits, farming	23	18.4	19.7	100.0
	Total	117	93.6	100.0	
Missing	System	8	6.4		
Total		125	100.0		

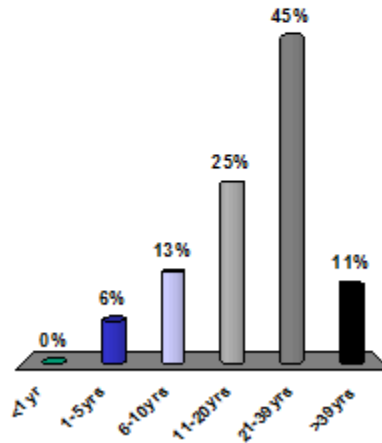
Those indicating they were engaged in farming either inside or outside city limits were combined to create a “farming/non-farming” variable (below).

Your farming involvement?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Non-farming	86	68.8	73.5	73.5
	Farming	31	24.8	26.5	100.0
	Total	117	93.6	100.0	
Missing	System	8	6.4		
Total		125	100.0		

How long have you been involved in water resource activities (interested citizen or professional involvement)?

1. <1 yr
2. 1-5 yrs
3. 6-10 yrs
4. 11-20 yrs
5. 21-39 yrs
6. >39 yrs

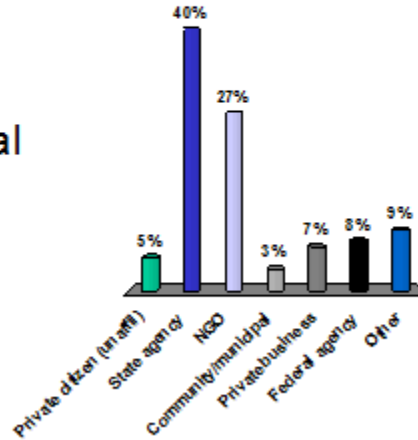


How long have you been involved in water resource activities?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-5 yrs	7	5.6	5.9	5.9
	6-10 yrs	15	12.0	12.6	18.5
	11-20 yrs	30	24.0	25.2	43.7
	21-39 yrs	54	43.2	45.4	89.1
	>39 yrs	13	10.4	10.9	100.0
	Total	119	95.2	100.0	
Missing	System	6	4.8		
Total		125	100.0		

Your primary water resources affiliation?

1. Private citizen (unaffil)
2. State agency
3. NGO
4. Community/municipal
5. Private business
6. Federal agency
7. Other



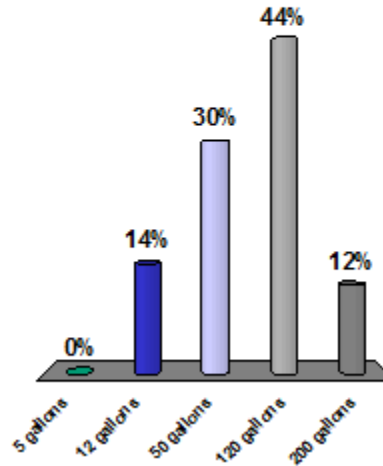
Your primary water resource affiliation?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Citizen	6	4.8	5.1	5.1
	State agency	47	37.6	40.2	45.3
	NGO	32	25.6	27.4	72.6
	Municipal	4	3.2	3.4	76.1
	Private business	8	6.4	6.8	82.9
	Federal agency	9	7.2	7.7	90.6
	Other	11	8.8	9.4	100.0
	Total	117	93.6	100.0	
Missing	System	8	6.4		
Total		125	100.0		

On average, how much water does a Missourian use per day (all activities)?

Source: Un of Missouri

1. 5 gallons
2. 12 gallons
3. 50 gallons
4. 120 gallons
5. 200 gallons



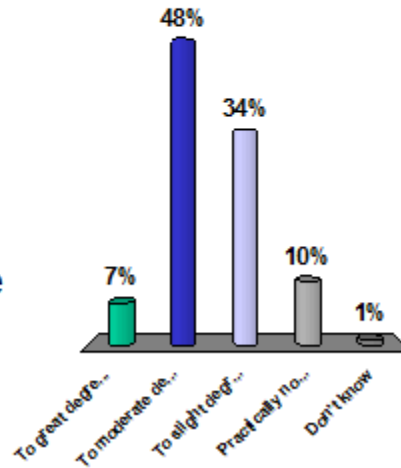
What is average daily water usage by a Missourian (source Un of MO)?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	12 gallons	16	12.8	14.3	14.3
	50 gallons	34	27.2	30.4	44.6
	120 gallons ^a	49	39.2	43.8	88.4
	200 gallons	13	10.4	11.6	100.0
	Total	112	89.6	100.0	
Missing	System	13	10.4		
Total		125	100.0		

a. Correct answer

To what degree do you think Missourians possess a water ethic, or a mindful appreciation of water's contribution to Missouri's quality of life?

1. To great degree
2. To moderate degree
3. To slight degree
4. Practically no degree
5. Don't know



To what degree do MO'ians possess mindful appreciation of H2O, or water ethic?

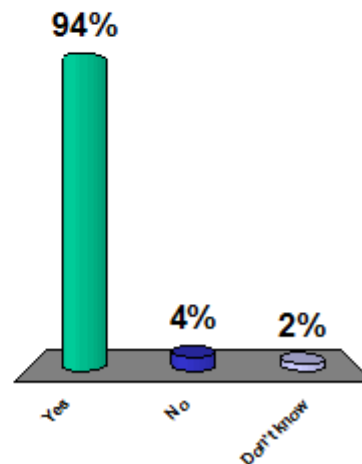
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	To great degree	8	6.4	6.8	6.8
	To moderate degree	57	45.6	48.3	55.1
	To slight degree	40	32.0	33.9	89.0
	Practically no degree	12	9.6	10.2	99.2
	Don't know	1	.8	.8	100.0
	Total	118	94.4	100.0	
Missing	System	7	5.6		
Total		125	100.0		

Following the panel, “Toward a Common Understanding of Missouri Water Resources,” and prior to the panel, “Challenges and Opportunities Affecting Security and Sustainability of Missouri Water,” the following narrative was read to Summit attendees, after which a series of related questions were posed using TurningPoint:

In 2005, author Richard Louv created quite a stir with his book he titled, *Last Child in the Woods*. The central theme of the book was that American society is growing increasingly isolated from the natural world. As a result, he suggested we grow more impoverished in mind, spirit, and body, and suffer to varying degrees what Louv called “nature deficit disorder.” This idea applies to adults, but especially to children, whose lack of outdoor activity, some suggest, is evidenced in growing rates of childhood obesity, childhood diabetes, and attention deficit problems. Louv’s thesis was based on the research of workers such as Yale’s Stephen Kellert, who spoke at the 2009 Summit on the Future of Missouri Outdoors. Kellert, as well, asserted that, in the absence of meaningful contact with nature, we as adult begin to lose our awareness of ourselves as the very consumers making demands on our natural resources. We grow less able to engage reasoned discussion on important issues such as water consumption, energy production, and the built environment. Remember, please, that “nature deficit disorder” is not a clinically recognized diagnosis. That said....

Based on your personal observations, is “nature deficit disorder”—individual & social ills from lack of contact with nature (such as lack of “water awareness”)—a real phenomenon?

1. Yes
2. No
3. Don't know

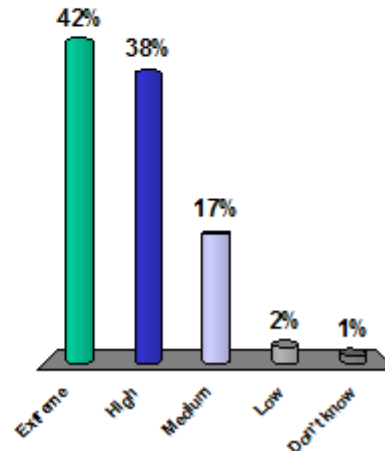


In your experience, is nature deficit disorder real?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	89	71.2	93.7	93.7
	No	4	3.2	4.2	97.9
	Don't know	2	1.6	2.1	100.0
	Total	95	76.0	100.0	
Missing	System	30	24.0		
Total		125	100.0		

In your opinion, how great a threat does “nature deficit disorder”—isolation from nature and sources of natural production—present to Missouri’s quality of life?

1. Extreme
2. High
3. Medium
4. Low
5. Don't know

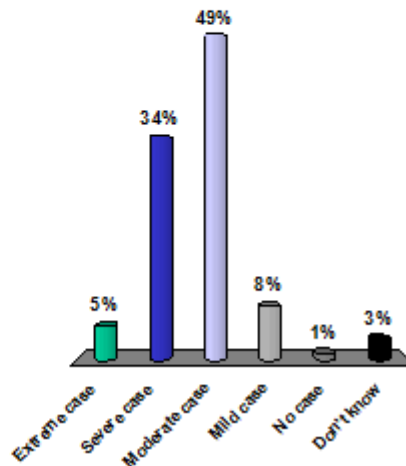


How great a threat does nature deficit disorder present to MO's quality of life?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Extreme	40	32.0	42.1	42.1
	High	36	28.8	37.9	80.0
	Medium	16	12.8	16.8	96.8
	Low	2	1.6	2.1	98.9
	Don't know	1	.8	1.1	100.0
	Total	95	76.0	100.0	
Missing	System	30	24.0		
Total		125	100.0		

How would you characterize the degree to which Missourians today (as a citizenry) are affected by nature deficit disorder?

1. Extreme case
2. Severe case
3. Moderate case
4. Mild case
5. No case
6. Don't know

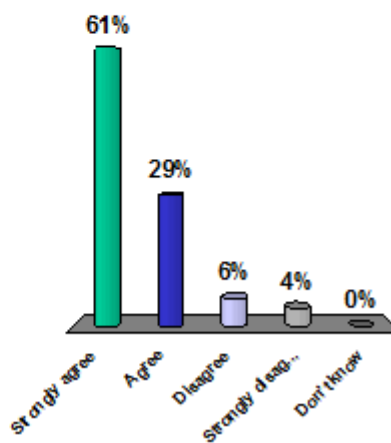


Today, to what degree are MO'ians affected by nature deficit disorder?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Extreme case	5	4.0	5.1	5.1
	Severe case	33	26.4	33.7	38.8
	Moderate case	48	38.4	49.0	87.8
	Mild case	8	6.4	8.2	95.9
	No case	1	.8	1.0	96.9
	Don't know	3	2.4	3.1	100.0
	Total	98	78.4	100.0	
Missing	System	27	21.6		
Total		125	100.0		

In your family, nature-oriented activities such as walking for pleasure, nature viewing, camping, fishing, hunting (& other outdoor activities) are being passed along?

1. Strongly agree
2. Agree
3. Disagree
4. Strongly disagree
5. Don't know



In your family, nature activities are being passed along?

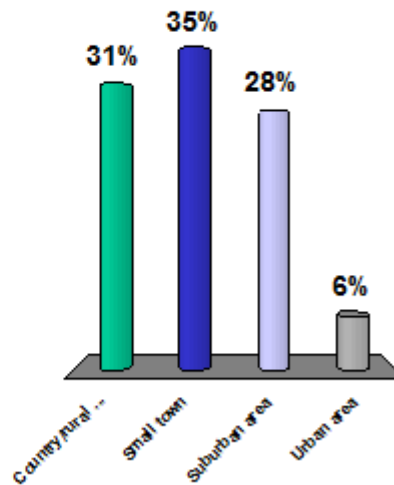
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	59	47.2	60.8	60.8
	Agree	28	22.4	28.9	89.7
	Disagree	6	4.8	6.2	95.9
	Strongly disagree	4	3.2	4.1	100.0
	Total	97	77.6	100.0	
Missing	System	28	22.4		
Total		125	100.0		

Respondents indicating that they were involved in farming were more likely to strongly agree (73%) that outdoor activities were being passed along in their families than respondents not involved in farming, though nearly 6 in 10 non-farming respondents (58%) strongly agreed that outdoor traditions are being passed along in their families (below).

Your farming involvement	In your family, nature activities are being passed along?						
	Strongly agree	Agree	Disagree	Strongly disagree	Total		
Non-farming	58%	31%	6%	5%	64	71%	
Farming	73%	23%	4%	0%	26	29%	
Total	62%	29%	6%	3%	90	100%	

Which best describes where you grew up as a child?

1. Country/rural area
2. Small town
3. Suburban area
4. Urban area



Where did you grow up as child?

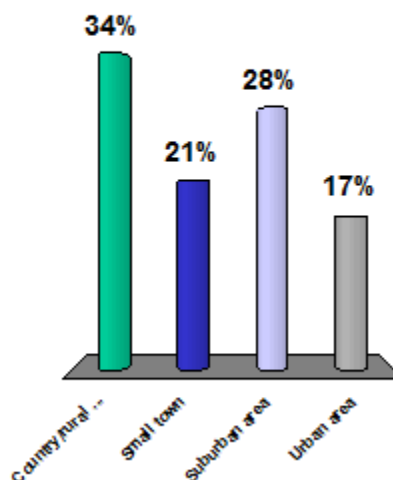
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Country/rural	32	25.6	31.1	31.1
	Small town	36	28.8	35.0	66.0
	Suburban	29	23.2	28.2	94.2
	Urban	6	4.8	5.8	100.0
	Total	103	82.4	100.0	
Missing	System	22	17.6		
Total		125	100.0		

Interestingly, there was a relationship between the urban-rural continuum of respondents' childhood residences and whether outdoor traditions are being passed along in respondents' families today. Specifically, those growing up in country/rural settings were more likely to strongly agree that nature activities are being passed along in their families today (77%) than those growing up in suburban (50%) or urban (40%) locales (below).

Where did you grow up as a child?	In your family, nature activities are being passed along?						
	Strongly agree	Agree	Disagree	Strongly disagree	Total		
Country/rural	77%	17%	7%	0%	30	32%	
Small town	58%	33%	3%	6%	33	35%	
Suburban	50%	35%	8%	8%	26	28%	
Urban	40%	40%	20%	0%	5	5%	
Total	61%	29%	6%	4%	94	100%	

Which best describes where you and your family live now?

1. Country/rural area
2. Small town
3. Suburban area
4. Urban area



Where do you & family live now?

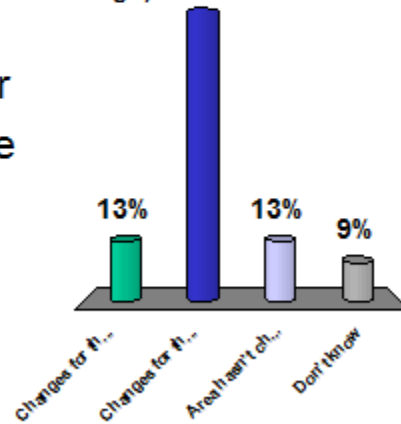
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Country/rural	35	28.0	34.3	34.3
	Small town	21	16.8	20.6	54.9
	Suburban	29	23.2	28.4	83.3
	Urban	17	13.6	16.7	100.0
	Total	102	81.6	100.0	
Missing	System	23	18.4		
Total		125	100.0		

The relationship between the urban-rural character of respondents' current residences and whether outdoor traditions are being passed along in their families today was intriguing. Over two-thirds (68%) of attendees who indicated they now live in country/rural settings strongly agreed that outdoor traditions are being passed along in their families today. However, an even greater proportion of respondents (73%) now living in *suburban* locales strongly agreed that outdoor traditions are being passed along in their families (below).

Where do you and your family live now?	In your family, nature activities are being passed along?					Total	Total
	Strongly agree	Agree	Disagree	Strongly disagree			
Country/rural	68%	21%	6%	6%	34	36%	
Small town	40%	45%	15%	0%	20	21%	
Suburban	73%	23%	4%	0%	26	28%	
Urban	57%	36%	0%	7%	14	15%	
Total	62%	29%	6%	3%	94	100%	

Overall, what landscape changes affecting water resources have occurred in the watershed/s where you grew up as a child? (watershed=all the land area over which water flows to a particular drainage) **64%**

1. Changes for the better
2. Changes for the worse
3. Area hasn't changed
4. Don't know



What landscape changes have occurred in watershed/s where you grew up?

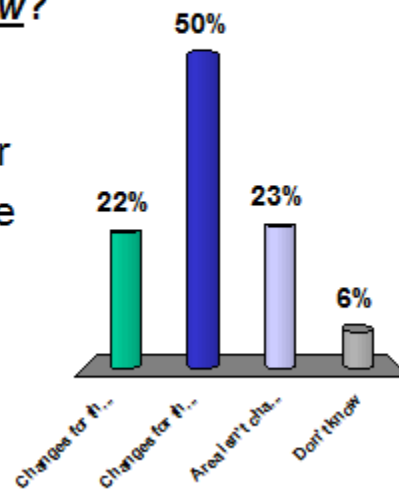
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Changes for better	14	11.2	13.5	13.5
	Changes for worse	67	53.6	64.4	77.9
	No changes	14	11.2	13.5	91.3
	Don't know	9	7.2	8.7	100.0
	Total	104	83.2	100.0	
Missing	System	21	16.8		
Total		125	100.0		

Regardless of the urban-rural character of respondents' childhood residences, majorities of Summit attendees said that the landscape changes that have occurred in the watersheds where they grew up are changes for the worse (below).

Where did you grow up as a child?	What landscape changes have occurred in watershed/s where you grew up?						
	Changes for better	Changes for worse	No changes	Don't know	Total		
Country/rural	12%	59%	22%	6%	32	32%	
Small town	14%	69%	8%	8%	36	36%	
Suburban	11%	74%	4%	11%	27	27%	
Urban	33%	50%	17%	0%	6	6%	
Total	14%	66%	12%	8%	101	100%	

Overall, what landscape changes affecting water resources are occurring in the watershed where you and your family live now?

1. Changes for the better
2. Changes for the worse
3. Area isn't changing
4. Don't know



What landscape changes have occurred in watershed/s where you live now?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Changes for better	22	17.6	21.6	21.6
	Changes for worse	51	40.8	50.0	71.6
	No changes	23	18.4	22.5	94.1
	Don't know	6	4.8	5.9	100.0
	Total	102	81.6	100.0	
Missing	System	23	18.4		
Total		125	100.0		

Respondents were slightly more optimistic about the nature of changes in the watersheds where they now reside, though pluralities or majorities across all categories of the urban-rural continuum indicated that landscape changes that have occurred are changes for the worse.

Where do you & family live now?	What landscape changes have occurred in watershed/s where you live now?						
	Changes for better	Changes for worse	No changes	Don't know	Total		
Country/rural	14%	54%	29%	3%	35		36%
Small town	21%	47%	21%	11%	19		20%
Suburban	27%	54%	15%	4%	26		27%
Urban	38%	44%	12%	6%	16		17%
Total	23%	51%	21%	5%	96		100%

Common Action in Support of Missouri's Water Resources

On December 2, following the keynote presentation by Justice Greg Hobbs of the Colorado Supreme Court, respondents were asked to organize themselves into 10 groups to address each of the following major categories of water use:

1. Clean drinking water,
2. Water for recreation,
3. Water for municipal use/water systems,
4. Water for commerce/industry,
5. Water for fish & wildlife habitats,
6. Water for power generation,
7. Water for agriculture,
8. Clean groundwater,
9. Clean rivers, streams, and lakes, and
10. Flood management.

The primary outcome of these facilitated small group discussions was to identify the top actions on which Missourians can collaborate in support of these water uses. In Appendix B, deliberations for each group are presented as documented by each small group recorder.

Following are the top 2 actions identified by small group participants for each water need:

- Clean drinking water;
 1. Develop a simple, unified water awareness campaign that connects with all Missouri citizens.
 2. Invest in water resource planning, conservation and efficiency at all geographic levels.
- Water for recreation;
 1. Build a sense of pride, emotional connection, and responsibility through a statewide clean water campaign with education.
 2. Protect watersheds, riparian corridors, and flows through incentives that place a value on healthy water resources.
- Water for municipal use/water systems;
 1. Increase education on municipal water uses at all levels from consumer to government officials.
 2. Build stronger collaborative ties among all groups involved with municipal water uses.
- Water for commerce/industry;
 1. Strategically partner with industry and commerce to inform and educate citizens, trade leaders, political leaders, and business leaders to develop a combined water ethic on a watershed basis.
 2. Re-evaluate and redefine state and federal funding and regulatory mechanisms and priorities.
- Water for fish and wildlife habitats;
 1. Develop a comprehensive/ integrated statewide water plan.
 2. Engage Missourians in dialogue for sustaining our water resources.

- Water for power generation;
 1. Create a common currency of understanding and methods to both share with and engage stakeholders on the relationship between energy production and the environment [i.e., develop a communications strategy; identify stakeholders (attentive publics, potentially affected interests); expect consistent, committed stakeholder participation].
 2. Adopt new production technologies that are more efficient with water use and have environmental enhancements; e.g. pursue with Corps of Engineers retro-fitting Missouri's major flood storage dams to increase power production efficiency and environmental enhancements.
- Water for agriculture;
 1. Establish, incentivize and evaluate best management practices (BMPs), strategies, and water quality goals at the watershed level.
 2. Recognize and showcase the environmental success of innovative farmers through a local community partnership based approach (i.e., Farmers Teaching Farmers).
- Clean groundwater;
 1. Coordinated educational/outreach efforts to connect people to their groundwater through an interagency education committee, state environmental education advisor board, regional/community stakeholder groups, coordinated ad campaign and other educational opportunities.
 2. Participate in restructuring of DNR's Water Protection Program and associated fees.
- Clean rivers, streams, and lakes;
 1. Blueprint for MO Water Future – potential Commission on Missouri Waters (include representatives of all Missouri water users & uses, i.e., regulations, water use, recreation, education).
 2. Increased efforts for water quality and quantity outreach and education (statewide campaign, reallocation of resources for outreach and education, charismatic water icon).
- Flood management;
 1. Develop tools to understand and evaluate upstream/downstream impacts of decisions.
 2. Expand the floodplain and restrain development.

Final Action Ranking

Following report-outs by each of the 10 small groups, the foregoing 20 actions were presented to attendees for prioritization using TurningPoint technology. Participants were asked to rate the priority that should be assigned each of the 20 actions using a 4-point scale, where 1 was “urgent priority,” 2 was “high priority,” 3 was “medium priority,” and 4 for “lower priority.” Again, it must be emphasized that all 20 actions emerged from small group discussions as “high priority,” so all 20 actions are worthy of effort. This exercise was intended to identify the most critical of high priority items.

The 20 actions were randomized by group, and presented to attendees for rating in the following order:

A1: Create a common currency of understanding and methods to both share with and engage stakeholders on the relationship between energy production and the environment [i.e., develop a communications strategy; identify stakeholders (attentive publics, potentially affected interests); expect consistent, committed stakeholder participation].

A2: Adopt new production technologies that are more efficient with water use and have environmental enhancements; e.g. pursue with Corps of Engineers retro-fitting Missouri's major flood storage dams to increase power production efficiency and environmental enhancements.

A3: Build a sense of pride, emotional connection, and responsibility through a statewide clean water campaign with education.

A4: Protect watersheds, riparian corridors, and flows through incentives that place a value on healthy water resources.

A5: Increase education on municipal water uses at all levels from consumer to government officials.

A6: Build stronger collaborative ties among all groups involved with municipal water uses.

A7: Establish, incentivize and evaluate best management practices (BMPs), strategies, and water quality goals at the watershed level.

A8: Recognize and showcase the environmental success of innovative farmers through a local community partnership based approach (i.e., Farmers Teaching Farmers).

A9: Develop a comprehensive/integrated statewide water plan.

A10: Engage Missourians in dialogue for sustaining our water resources.

A11: Blueprint for MO Water Future – potential Commission on Missouri Waters (include representatives of all Missouri water users & uses, i.e., regulations, water use, recreation, education).

A12: Increased efforts for water quality and quantity outreach and education (statewide campaign, reallocation of resources for outreach and education, charismatic water icon).

A13: Coordinated educational/outreach efforts to connect people to their groundwater through an interagency education committee, state environmental education advisor board, regional/community stakeholder groups, coordinated ad campaign and other educational opportunities.

A14: Participate in restructuring of DNR's Water Protection Program and associated fees.

A15: Strategically partner with industry and commerce to inform and educate citizens, trade leaders, political leaders, and business leaders to develop a combined water ethic on a watershed basis.

A16: Re-evaluate and redefine state and federal funding and regulatory mechanisms and priorities.

A17: Develop tools to understand and evaluate upstream/downstream impacts of decisions.

A18: Expand the floodplain and restrain development.

A19: Develop a simple, unified water awareness campaign that connects with all Missouri citizens.

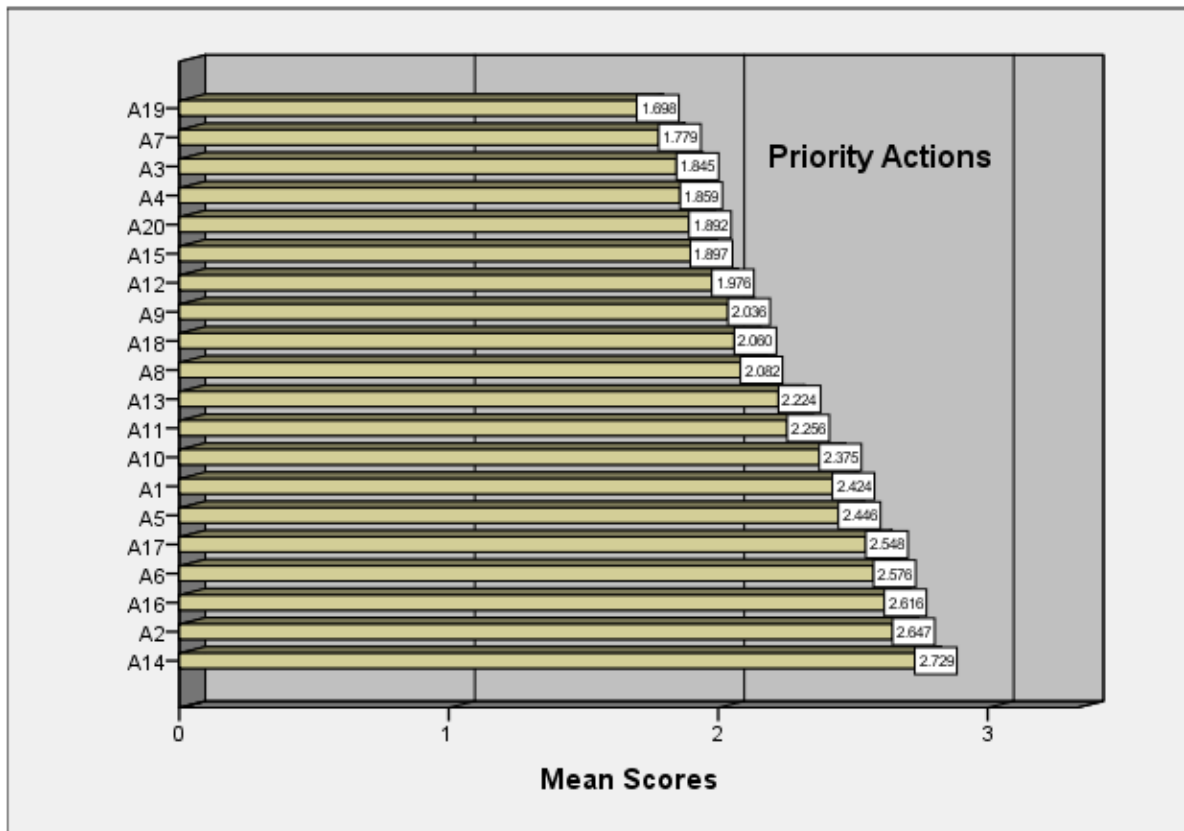
A20: Invest in water resource planning, conservation and efficiency at all geographic levels.

TurningPoint polling resulted in the following ranking based on mean score:

Priority Actions, Mean Score Analysis

	N	Minimum	Maximum	Mean ^a	Std. Deviation
A19	86	1	4	1.698	.813
A7	86	1	4	1.779	.832
A3	84	1	4	1.845	.963
A4	85	1	4	1.859	.774
A20	83	1	4	1.892	.884
A15	87	1	4	1.897	.953
A12	84	1	4	1.976	.981
A9	83	1	4	2.036	1.087
A18	84	1	4	2.060	1.101
A8	85	1	4	2.082	1.014
A13	85	1	4	2.224	.836
A11	86	1	4	2.256	1.119
A10	80	1	4	2.375	.960
A1	85	1	4	2.424	.891
A5	83	1	4	2.446	1.003
A17	84	1	4	2.548	1.046
A6	85	1	4	2.576	.864
A16	86	1	4	2.616	1.076
A2	85	1	4	2.647	.869
A14	85	1	4	2.729	.993

a. Priority: 1=Utmost, 2=High, 3=Medium, 4=Lower



The final ranking of actions, *in priority order*, was:

1. A19: Develop a simple, unified water awareness campaign that connects with all Missouri citizens.
2. A7: Establish, incentivize and evaluate best management practices (BMPs), strategies, and water quality goals at the watershed level.
3. A3: Build a sense of pride, emotional connection, and responsibility through a statewide clean water campaign with education.
4. A4: Protect watersheds, riparian corridors, and flows through incentives that place a value on healthy water resources.
5. A20: Invest in water resource planning, conservation and efficiency at all geographic levels.
6. A15: Strategically partner with industry and commerce to inform and educate citizens, trade leaders, political leaders, and business leaders to develop a combined water ethic on a watershed basis.
7. A12: Increased efforts for water quality and quantity outreach and education (statewide campaign, reallocation of resources for outreach and education, charismatic water icon).
8. A9: Develop a comprehensive/integrated statewide water plan.
9. A18: Expand the floodplain and restrain development.
10. A8: Recognize and showcase the environmental success of innovative farmers through a local community partnership based approach (i.e., Farmers Teaching Farmers).
11. A13: Coordinated educational/outreach efforts to connect people to their groundwater through an interagency education committee, state environmental education advisor board, regional/community stakeholder groups, coordinated ad campaign and other educational opportunities.
12. A11: Blueprint for MO Water Future – potential Commission on Mo Waters (include representatives of all Missouri water users & uses, i.e., regulations, water use, recreation, education).
13. A10: Engage Missourians in dialogue for sustaining our water resources.
14. A1: Create a common currency of understanding and methods to both share with and engage stakeholders on the relationship between energy production and the environment [i.e., develop a communications strategy; identify stakeholders (attentive publics, potentially affected interests); expect consistent, committed stakeholder participation].
15. A5: Increase education on municipal water uses at all levels from consumer to government officials.
16. A17: Develop tools to understand and evaluate upstream/downstream impacts of decisions.
17. A6: Build stronger collaborative ties among all groups involved with municipal water uses.
18. A16: Re-evaluate and redefine state and federal funding and regulatory mechanisms and priorities.

19. A2: Adopt new production technologies that are more efficient with water use and have environmental enhancements; e.g. pursue with Corps of Engineers retro-fitting Missouri's major flood storage dams to increase power production efficiency and environmental enhancements.
20. A14: Participate in restructuring of DNR's Water Protection Program and associated fees.

To advance this action agenda, it remains for CFM to establish a working group composed of Summit participants and others willing to serve to:

- Consolidate and refine as appropriate the foregoing actions, (incorporating other Summit outcomes as well), and
- Develop strategies to implement these actions through existing or new initiatives of agencies and organizations.

Acknowledgements

Sincere thanks are extended to:

- Water Summit attendees who contributed their time, experience, ideas, and patience, and to whom the success of the Summit is gratefully attributed.

Many thanks as well to:

- Linnemeyer Trust and National Wildlife Federation for underwriting the Missouri Water Summit 2011 and the pre-Summit survey of water resource opinion leaders.
- National Wildlife Federation and Conservation Federation of Missouri for their collaborative vision of a Water Summit (and to CFM staff whose energy and attention to detail contributed immeasurably to the success of the Water Summit);
- Governor Nixon and Judge Hobbs for their inspiring and revealing keynote remarks;
- The 11 panel members who provided insightful and expert commentary on the status and future of Missouri water resources;
- The 20 individuals who graciously and willingly volunteered as Facilitators and Recorders for the Small Group Exercise;
- Bass Pro, Columbia, MO, and Mr. John Morris, for Bass Pro's extraordinary and continuing support of our nation's and Missouri's natural resources;
- Missouri American Waters (St. Louis) for water bottles distributed at registration; and
- Water Summit Program Committee that brought the Summit to reality, including the agencies and organizations that contributed in material, staff expertise, and equipment (including still/video photography and printing).

Appendix A. Program

Missouri Water Summit

2011
Deepening Our Water Wisdom & Mobilizing for Action

SUMMIT PROGRAM COMMITTEE
Conservation Federation of Missouri, D.J. Case & Associates, Mahfood & Associates, Missouri Department of Conservation, Missouri Department of Natural Resources, Missouri Stream Team Watershed Coalition, National Wildlife Federation, Open Space Council, University of Missouri Extension, The Nature Conservancy

Summit presentations and other related materials may be found at www.confedmo.org/watersummit.

Underwritten in part by the Linnemeyer Trust
Organized by the Conservation Federation of Missouri
in partnership with the National Wildlife Federation

Design and printing by the Missouri Department of Conservation

December 1-2, 2011
Stoney Creek Inn, Columbia, Missouri

Missouri Water Summit 2011

Deepening Our Water Wisdom & Mobilizing for Action

AGENDA

Thursday, December 1

11:00-1:00pm Registration

1:00-1:15pm **Call to Order, Welcome and Introductory Remarks**
Dan Witter, D.J. Case & Associates; and Mike Schaffon, President, Conservation Federation of Missouri

1:15-1:40pm **Missouri's Water Realities: Deepening Our Water Wisdom & Mobilizing for Action**
Governor Jay Nixon

1:40-3:05pm **Panel: Toward a Common Understanding of Missouri Water Resources**

3:05-3:30pm Break/snacks

3:30-5:10pm **Panel: Challenges and Opportunities Affecting Security & Sustainability of Missouri's Water**

5:10-5:20pm **Review of Friday's Agenda; Instructions for Social**
Dave Murphy, Executive Director, Conservation Federation of Missouri

5:20-6:30pm **Free Time**

6:30-9:00pm **Social sponsored by Bass Pro Shops**

Friday, December 2

Breakfast—On your own

8:00-8:15am **Call to Order, Welcome and Introductory Remarks**
Dan Witter, and GERALYN HOEY, National Wildlife Federation

8:15-9:20am **Water Sustainability in the Midwest and West**
Justice Gregory Hobbs

9:20-9:30am **Charge To Attendees for Facilitated Sessions**

9:30-10:00am Break/snacks

10:00-12:00pm **Attendee Input: Facilitated sessions to compile attendees' ideas, strategies, and solutions to accomplish key actions, overcome major barriers and collaborate to meet Missouri's water resource needs**

12:15-1:15pm Lunch (included in Registration)

1:15-2:45pm **Report-out and synthesis of small group discussions**

2:45-3:00pm **Prioritization of actions**

3:00-3:30pm **Wrap-up, Closing Remarks and Next Steps**
Dave Murphy

FEATURED SPEAKERS

Jeremiah W. (Jay) Nixon: Elected Missouri's 55th Governor in 2008, Jeremiah Nixon served as Missouri's Attorney General for 16 years and as a Missouri State Senator for 6 years. He has been a strong advocate for our state's water resources throughout the course of his public career.

Gregory Hobbs: A justice of the Colorado Supreme Court, Judge Hobbs practiced water, environmental, land use, and transportation law prior to becoming a justice in 1996. A distinguished author, his books include, *Public's Water Resources: Articles on Water Law, History, and Culture*; *Colorado Mother of Rivers: Water Poems*; and *In Praise of Fair Colorado: The Practice of Poetry, History and Judging*.

PANELISTS:

"Toward a Common Understanding of Missouri Water Resources"

Shane Barks, Deputy Director, USGS Missouri Water Science Center

Pat Guinan, State Climatologist, Missouri Climate Center, University of Missouri

Ryan Mueller, Director, Water Resources Center, Missouri Department of Natural Resources

Holly Neill, Executive Director, Missouri Stream Team Watershed Coalition

Jack McManus, Chief Counsel, Agriculture & Environment Division, Missouri Attorney General's Office

PANELISTS:

"Challenges & Opportunities Affecting Security & Sustainability of Missouri's Water"

Mary West Calcagno, Water Market Principal, Jacobs Engineering Group Inc.

Jan Goldman-Carter, Wetlands & Water Resources Counsel, National Wildlife Federation

Jon Hagler, Director, Missouri Department of Agriculture

Barry Hart, Executive Vice President, Association of Missouri Electric Cooperatives

Sara Pauley, Director, Missouri Department of Natural Resources

Bob Ziehmer, Director, Missouri Department of Conservation

Download the *Missouri Water Issues and Opportunities 2011 Survey Results* at www.confedmo.org/watersummit.

Appendix B. Small Group Reports (unedited)

Clean Drinking Water

Small Group Discussion and Actions

Prioritized Actions

1. Develop a simple, unified water awareness campaign that connects with all Missouri citizens. 19 votes
2. Invest in water resource planning, conservation and efficiency at all geographic levels. 15 votes
3. Support and ramp up age-appropriate, place-based water education efforts. 14 votes
4. Improve communication among stakeholders to improve understanding and cooperation. 8 votes

Participants:

- Mark Van Patten (MDC) - facilitator
- Kimberly Hoke (DNR) – recorder
- John Holmes (Allstate consultants)
- John Overstreet
- Doug Hermes (MACOG)
- Diane Orley sp
- Gus Raeker
- Mike Huffman (DOC)
- Mike Kromery (Watershed committee of the Ozarks)

Obstacles to meet Missouri's water resource needs for clean drinking water

- Regulations involved in building new water supply source (reservoirs)

- Referenced Davis Minton's discussion yesterday – (3 things important, money...)
- Ridiculously low water rates that do not reflect the cost of doing business and historic low rates are difficult to change. Citizens are used to paying low cost for water. Water is the most crucial utility we supply to citizens. Could be a perception problem because people see abundant water
- We don't charge for the water but we charge for the cost to deliver the water, clean it, make it safe, etc...
- Perceived value of supplying water – it will require a paradigm shift
- Need to convince citizens of the cost to maintain water systems, and raise rates. Some rates have not been touched for 30 years.
- Money borrowed decades ago to build water treatment system, accounts for maintenance may have been established at that time, however since that time those accounts may not have been used for maintenance as intended, and now when the funds are needed, they may not be there.
- Pattern of behavior of borrowing, lack of maintenance for infrastructure – planning ahead, setting aside funds – is a cultural problem (borrowing, spending all we have) – system of behaviors across the board in all areas of society.
- Lots of agreement on this point
- We have a short term perspective, and this is a long-term issue. We ultimately want clean water but in short term, we don't want to pay the cost.
- Water is undervalued by the public and we need to change the attitude.
- Perceptions in Missouri about land rights are out dated. We need to reach a better understanding of shared resources.
- 75% of counties (citing Mary West yesterday) don't have zoning – we are still in the 19th century in terms of land rights
- Ultimate key or challenge is money – to get there – we need to deal with public awareness – water source, how water is used, what watershed people live in, people don't understand or appreciate the value of putting
- Public awareness of water consumers and of landowners
- People don't understand the effort of getting water from source to their faucets

- Public disconnect – across the board – we as a society take things for granted because they have always been there for us (roads, electricity, sewer, water, etc...) society is disconnected from the things at the core of our existence. We take them for granted because we do not understand them.
- Clean drinking water is the hook we can use – because it touches everyone. Everyone needs clean water out of their faucet. We can use this to raise awareness to educate on all of the other water issues.
- This is an obstacle, but also an opportunity to communicate with people about water and water rights.
- Society is getting more and more disconnected to those things at the core of our existence.
- Leopold quote “biggest danger of living in the city is that you think food comes from the store and heat comes from the furnace”
- PBS documentary – “? waters” – water infrastructure is in real danger and one of the most underfunded.
- Real cost of water – goes for all of our resources not just water (energy, others...) – we have to work on educating or building towards understanding.
- Resources for education or flexibility within our educational system to have people should know where sewage, trash go, and where water and power comes from.
- People should learn about their environment locally rather than global concepts that don't directly affect their lives.
- Framework of guidelines in education is rigid in a way that doesn't allow for water education.
- Global population growth is becoming focus of conflict and this will only continue to worsen as population continues to grow.
- Even in U.S. water is not available proportional to the population centers and needs
- This highlights the need for global education on how to effectively and efficiently use that resource.
- Increase demand for finite resource due to population growth
- We are fortunate in the mid-west because we have not had to face resource shortages compared to other parts of the country. As a result, we still have mentality of early settlement in

terms of land rights, property rights, etc. Many people don't have understanding of the concept that you are responsible for water and air, etc. that leaves your land.

- We all share the same limited resources and it is in our individual best interests to work together. This is counter to typical human behavior.
- People are opposed to change if they don't feel like they will benefit.
- If it is on my land, it is mine.
- Regulations – we need them to be considered together rather than in silos. For example, reservoirs – we could spend 5X more on mitigation than we would actually building the reservoir.
- Look at the long term public interest.
- Landowners – their good decisions also impact water quality in a positive way – and we all benefit from that and we don't pay the landowner anything in return for that. We don't have a good infrastructure in place to reward landowners for doing the right thing. Some limited cost share programs, but what other benefit is that?
- Regulatory framework and public assistance – there are not many public water supply systems without some degree of assistance from DNR, USDA-RD – new systems, major repairs, etc.. even suburban cities are using loan resources. – those resources are drying up at the federal level.
- Smaller communities and smaller systems already behind in their own rates and will need assistance to build, expand, or maintain or even close down water systems. Economies of scale are not there for very small towns. It will lead to state and federal agencies to do greater levels of planning and watershed prioritization to decide where public investments are going to go.
- We are going to have to get away from first come, first serve and best-connected communities for resources.
- We will need to improve strategic planning.
- We need to raise awareness and politically about water resources and drinking water – we should be planning now rather than act when there is a crisis at greater cost later.
- Right now the smaller communities and systems require state or federal assistance to maintain both drinking water and sewer – but money is being reduced.
- It seems like some communities want it all paid for by someone else and don't want to accept any responsibility for it.

- Greater planning and prioritizing at the state and federal level.

Actions on which Missourians can work together to meet Missouri's water resource needs for clean drinking water

- Better conversations among current and future stakeholders
- Need to educate future stakeholders – children
- Stakeholder engagement and rational regulation
- Better communication between stakeholders on clean drinking water issues
- Acceptance of public planning at every level – local, regional, state
- Upper new York state model that tied into our planning – in that area rather than spending money on treatment and infrastructure instead they pay landowners in the source watershed to protect headwaters
- Simple, emotional, consistent message and repetitive for messaging about water resources

Prioritized Actions

1. Improve communication among stakeholders to improve understanding and cooperation. 8 votes
2. Support and ramp up age-appropriate, place-based water education efforts. 14 votes
3. Invest in water resource planning, conservation and efficiency at all geographic levels. 15 votes
4. Develop a simple, unified water awareness campaign that connects with all Missouri citizens. 19 votes

Water for Recreation

Small Group Discussion and Actions

Facilitator: David Thorne (MDC)

Recorder: Amy Wright (MDNR)

Group Attendees: Daniel Obrecht (U. of Missouri), Chris Vitello (MDC), Stuart Miller (MDC), John Schulz (MDC), Gopala Borchelt (Table Rock Lake Water Quality, Inc.), Donna Swall (LOWA), Lisa Allen (MDC), Bill Bryan (MDNR)

Recreational Usages of Water:

- Wading, looking for macro-invertebrates, fishing, canoeing, SCUBA diving, noodling, birding, being outside near water, kayak races, boating, attraction of other recreational opportunities and commercial businesses, hunting guides, water for hunting, tubing, parasailing, aesthetics, sense of place, connection of history with present, swimming, et al.
- Has predictable outcome/convenient /local

Obstacles:

- Money, perception of quality, lack of access, lack of time, multiple uses, lack of information about others' pollution, user competition, land owner trespasses, knowledge/skill of how to boat, public doesn't perceive crisis, drought/lack of water, perception of danger, too crowded, pollution (e.g., mercury, excess nutrients/eutrophication), may write-off opportunities near home, lack of safety on waters, lack watershed focus (seeing connectivity), sense of ownership of watershed, storm water run-off (flashy), too much wildlife (e.g., too many geese), development, deforestation, loss of riparian corridor, lack of BMPs for agriculture, lack of recognition of value of water to economy, devalue many existing opportunities, lack of appreciation of outdoors, busy/structured kids

Actions:

1. Stakeholders coordinate actions while maintaining own purpose. Build a consolidated vision among stakeholders. (0 votes).
 - Question of how you would build a consolidated vision that leads to an action that is meaningful.
 - Need multiple solutions to a complex problem.
 - Need well organized, clear communication strategy.
2. Outreach. Create sense of pride, emotional connection, long-term sense of responsibility. (6 votes).
3. Enforcement. Hold people accountable to stated tasks. (0 votes).
4. Protect forest, watershed and riparian areas.
Empower and enable people with the tools to protect riparian areas, e.g., conservation easements, tax incentives, planning/zoning. (10 votes).
5. Expand outdoor schools. (1 vote).

6. Provide environmental education in schools. (9 votes).
7. No item.
8. Create outdoor recreation opportunities in urban areas. Example: “Livable Streams.” Better urban planning. More parks for community to appreciate. Urban streams. (3 votes)
9. Create a more expansive definition of recreation for Missouri’s beneficial uses. Currently, whole-body contact is main focus. Need more expansive protection of beneficial uses. (0 votes).
10. Align government regulations and jurisdiction. (0 votes).
11. Increase boating safety requirements (e.g., with educational marketing). (0 votes).
12. Create statewide clean water campaign, or awareness campaign. Include conservation. Recognition honor role. Examples: “Healthy Yards for Clean Streams,” “Lake Smart” homes. (15 votes).
13. Create water-based recreation funding mechanism, e.g., if community wants to build water trail on lake in park, funding may be provided for signs, etc. (0 votes).
14. Create funding mechanism to allow landowners to provide access for public use. (0 votes).
15. Promote water conservation, protection of instream flows and State’s water. (5 votes).
16. Place a value on environmental services. (6 votes).
17. Educate people on their impacts on land and others – water is interrelated. (0 votes).

Priority Actions (Top Two):

1. **Build a sense of pride, emotional connection, and responsibility through a statewide clean water campaign with education. (Actions #2 and #12 combined, total of 21 votes).**
2. **Protect watersheds, riparian corridors, and flows through incentives that place a value on healthy water resources. (Actions #4 and #16 combined, total of 16 votes).**

Water for Municipal Use/Water Systems

Small Group Discussion and Actions

Attendees:

Sherry Fischer and Bob Broz

Barbara Lucks

Gary Van De Velde

Carol Davit

Tye Parsons

Gerilyn Hoey

Drinking water, wastewater, stormwater, Conveyance of water

Multiple roles of the municipalities- health, environment, balanced against resources and the culture

Obstacles to meeting water resources needs for water for Municipal use and water systems:

Aging infrastructure and cost of updating

Not enough code enforcers (enforcement of code)

Balance of needs and regulations

Lack of education

Local vs non-local - if provider is tied to the community then there is generally a better tie to education

Pressure of the population for clean water for volume needed

Lot of pressure on locals on what needs to be dealt with first

Prioritization of water needs

Culture of the people on wanting to pay for infrastructure

regional pride on having their own system

fear of losing their independence of owning their own system

Funding is an obstacle –

No plan for rate increases

Getting buy in from local people

Future Plan - having a plan to do increased rates, educate people and keeping it implemented and getting buy-in of the people

How to best educate – visual, signage, promotion, it takes time to do,

Most municipalities don't have a budget to do marketing and education or promote why it is needed.

Need a comprehensive program for marketing, etc.

Lack of professional staff

Are there groups that can help small towns with some of the issues

Economic realities

Start education and buy in with city council or board the more that everyone understands the process and the product the easier it will be to get rate increases approved

Need to understand the process and the product of providing clean water

Now able to pay boards – what is the long term effect

National regulations that can be cumbersome to smaller systems.

Many small systems use a lagoon system so you need to have electricity and personnel

What frustrates many small towns is that science can now test smaller and smaller amounts so new regulations cause systems to be out of compliance

The more there are of us and the more threats that are presented then the more we need to work on all the issues.

Taken care of point source and now we need to work on nonpoint source –

There is an issue with water quantity – is there enough available
Is water quantity (raw water sources) a major issue and where will the water come from.
Politics
Unfunded mandates
Fear of science – what is truth
Location of the water source or outflow – are consumers detached from the water supply.
Supply is needed for growth –
Stormwater – cost to manage, stormwater is a nuisance want to get it away because of water quality and quantity.
Culturally you have to deal with everyone in the city system and developers -
Education and culture of the area
Need to see stormwater as a resource
Piece-meal solutions
You can allow for different treatments for different areas – one size doesn't fit all things and needs
Methods to harvest and use.
Watershed management for stormwater management
Largest obstacle is not having someone that is keeping an eye on this
Education is a key for reducing stormwater
Most public officials are scared of the media.

Action Items

Look for the actions that Mo can use to meet Mo water resource needs for Municipal use and water systems.

Educational working groups for assisting other municipalities about what your system is doing and what the affects of our actions have on our supply and other supplies.

Creative education on structures like manhole covers
Education for the staff to make decisions and understand the workings of the system
Work with developers on more water friendly and stormwater reduction education issues
Watershed working groups for outreach/education and solutions for opportunities for open communication and future planning
Outreach with visual to report progress and improve education
Use local venues for education not just mailers Education strategies of the decision makers - board members, law makers,
Water conservation messages
Use and befriending the media

Technical assistance

Train employees to be advocates/ambassadors of the water system

Collaboration

Increase collaboration between citizens and not-for-profits and local governments
Combine outdoor events with water awareness education
Promoting the economic benefits of clean water

Increased collaboration of MO municipal league, and Mo Rural Water, MAC, corporation and industry, etc.

Promotion and support for agencies charged with protection water quality and ensure that their integrity remains in tact to complete their missions.

Continued promotion of funding resources to improve infrasturcture

Opportunities to showcase utilities and accomplishments

Having local pride in another area instead of low prices or owning an outdated system

Citizen engagement in entire process

Top 3 areas

Municipal Use: Education

Municipal: Collaboration

Promotion and support for agencies charged with protection of water quality and ensure that their integrity remains in tact to complete their missions.

Water for Commerce/Industry

Small Group Discussion and Actions

Participants:

Facilitator: Amy Buechler

Recorder: Steve Walker

Participants:

Nicole Wood

Emory Styron

Mike Alesandrini

Kathleen Logan Smith

Joe Pitts

Jennifer Batson

I. First, what do you think are the OBSTACLES to meeting Missouri's water resource needs for COMMERCE and INDUSTRY.

Is a no-discharge brewery possible?

How many facilities could move toward reducing their water use and using pretreatment and reducing their discharges?

North of Missouri River quantity issues are a problem. Water shortages are common. Mostly surface water is available. South of Missouri River, groundwater is more readily available.

Abundance of water but a shortage of sewers

Water table is dropping in SW MO. Irrigation drops the water table.

Industry can drill wells and pump large quantities of water. Clean water is very important. Need more information on how much water is withdrawn.

Groundwater and surface water are interconnected. CWA does not address groundwater.

Natural gas and fracking may be a problem in the future. How can we be proactive in the future to stop this from being a problem? From a geological standpoint, this may not be a problem in MO.

Missouri's groundwater law needs to be given some teeth to require more monitoring.

The lack of resources devoted to water in Missouri. Water is a very important resource in Missouri.

There are lots of discharge permits in Missouri. Permitting process is too slow and delays are common. No staff for innovations, getting the basics done is difficult. People want a consistent program they can count on.

DNR has a lack of funds to hire adequate staff. Accountability for existing funding from EPA – squandering of funds. Large amounts of 319 funds have been used for projects in the past with no accountability. Waste of money perceived for some hazardous waste cleanups when the money could be used more effectively in other areas. Money could be targeted more wisely.

Impact on recreation lakes in Oklahoma from blue-green algae blooms due to excessive nutrient runoff. Industry is contributing to the problem.

Water discharge economics – energy is an important part of this discussion.

Transportation problems from DOT highways being widened, etc. is a water quality problem.

Abundant water has served a wastewater disposal problem due to the dilution that discharges receive.

Groundwater regulations need to be more stringent, we need more information about the quantities of water being used.

Growing land development areas including homeowners that use too much fertilizer on their lawns that pollutes the local streams. More planning and zoning is needed. Only 32 of 114 counties have any zoning regulations.

People want jobs and clean water. Where is the middle ground?

Need more educational programs. These are expensive and staff intensive. This needs to be done by more than just agencies.

LID – Low Impact Development, green roofs, etc. need to be implemented more. Homeowners associations need to play a larger role here. Lack of enforcement/fines occur for home builders.

Lack of political will to make clean water a priority. Waivers of zoning laws occur too often.

Economic incentives drive the decisions of developers. Municipalities don't often adopt county recommendations for development and riparian protection.

Most of focus is on point sources, low hanging fruit, and not nonpoint sources.

One on one education is important.

II. Now, what are the actions on which Missourians can work together to meet Missouri's water resource needs for COMMERCE and INDUSTRY.

Missouri groundwater laws need to be more sophisticated, expanded, and more protective.

A natural resource commission is needed as a buffer between the legislature and the people in the state. The design for this is the Missouri Conservation Federation (parks, soils, and water sales tax).

Need to create more nonpolitical funding and selection of management through a commission at DNR. The initial action that is needed is a petition for DNR commission/funding.

More one on one education is needed and needs to be conducted by more than just agencies.

Empower the soil and water conservation districts and USDA offices to educate citizens. Set up train the trainer programs and let landowners talk to their neighbors. More education and peer pressure is needed. The Our Missouri Watersheds Initiative may be one way to get more stakeholders involved with environmental issues at the local level.

Strategically partner with industry and commerce to inform and educate citizens, trade leaders, political leaders, and business leaders to develop a combined water ethic on a watershed basis.

Re-evaluate and redefine state and federal funding and regulatory mechanisms and priorities.

Hold an annual water summit in every watershed.

Find sustainable funding for DNR's Our Missouri Watersheds Initiative.

III. Priorities on the Actions

Based on two dots per person.

- 1. Strategically partner with industry and commerce to inform and educate citizens, trade leaders, political leaders, and business leaders to develop a combined water ethic on a watershed basis. (Votes: 6)**
- 2. Re-evaluate and redefine state and federal funding and regulatory mechanisms and priorities. (Votes: 5)**
- 3. Hold an annual water summit in every watershed. (Votes: 1)**
- 4. Find sustainable funding for DNR's Our Missouri Watersheds Initiative. (Votes: 0)**

IV. Top Two Actions for Commerce and Industry

1. Strategically partner with industry and commerce to inform and educate citizens, trade leaders, political leaders, and business leaders to develop a combined water ethic on a watershed basis.

- Need more educational programs. These are expensive and staff intensive. This needs to be done by more than just agencies.
- Hold an annual water summit in every watershed.
- Empower the soil and water conservation districts and USDA offices to educate citizens. Set up train the trainer programs and let landowners talk to their neighbors.
- More education and peer pressure is needed.
- The Our Missouri Watersheds Initiative may be one way to get more stakeholders involved with environmental issues at the local level.

2. Re-evaluate and redefine state and federal funding and regulatory mechanisms and priorities.

- There are lots of discharge permits in Missouri. Permitting process is too slow and delays are common. No staff for innovations, getting the basics done is difficult. People want a consistent program they can count on.
- The lack of resources devoted to water in Missouri. Water is a very important resource in Missouri. Find sustainable funding for DNR's Our Missouri Watersheds Initiative.
- DNR has a lack of funds to hire adequate staff. Accountability for existing funding has been inadequate in showing improvements from the monies spent.
- Enforcement is a problem. Enforcement is not conducted uniformly.
- Groundwater regulations need to be more stringent, we need more information about the quantities of water being used.

V. Thoughts on these Outcomes

Water for Fish and Wildlife Habitats

Small Group Discussion and Actions

Water for Fish and Wildlife Habitats – Salon B

Facilitator - Michele Baumer/ Recorder - Colleen Meredith

Norman Leppo – reporting to plenary group

Step I - Question #1.

What are the obstacles to meeting Missouri's water resources needs for Fish and Wildlife Habitats

- Individual interests ie farming/ industry/ individual interests vs. environment
- Priorities – water is so readily available in all forms in MO and is not a concern.
- Not understanding what individuals are doing on their property extends to lack of understanding of cleaning up contaminants such as pharmaceuticals
- Competing priorities for water use – not such a worry except in SW area of the state and competing water use across state lines
- Natural process of drought, changing locations of streams, natural wet and dry cycles
- Declining budgets, how to get things done without enough money
- Weak regulatory environment and lack of sufficient incentives for positive action
- Ability to maintain connectivity between rivers and streams and habitat
- Urban – suburban sprawl
- Checkerboard pattern of ownership in watersheds ie federal, state and local properties
- 93% of MO is owned by private individuals. How can we connect to really make a difference esp with habitat – can't do 200 meters at a time for good habitat
- 80% of water used in irrigation – hard to reach some communities or interest groups for educational purposes
- Connecting with private person is the key – they need to value natural processes before they will protect them
- Mindset of Missourians – don't care if they are upstream or downstream. Affects fisherman, barbed wire across a floatable stream. Selfish interests.
- Resistance to change- people keep doing what they have been on the land and for personal water use for generations
- Harvest the land whether they use things or not – buy land and turn it over after useful products are removed
- Farmers see themselves as original conservationists. Our responsibility to make them not feel like villains but get them to identify as being with the “conservation” side
- Economics vs. conservation

- State departments are not communicating effectively with industry, agriculture, and individuals. We need to change our approach to private landowners to harness their efforts toward conservation.
- Takes generations/time to climb those mountains
- Public school systems is the way to get this going- not a single session class but produce a series as part of the curriculum to set the mindset early. Harder to change some old timers
- Kids will do things differently, aren't set in their ways
- Can't get enough cost-share or dollars to implement what we need ever. How do we work on economic standpoint, market driven system, to get them something done that is not payment related?
- When conservation pays off economically it may work. How can we get 100% effort out of landowners without paying?
- Lending programs through federal and state systems won't work forever. Getting immediate payback is what people go for. How can they see what pays in the long run? Is an education issue.
- Education can't trump economics and the market for commodities
- How do you motivate a society that is disconnected from the land. How can society be part of the solution?
- Society is getting more green. Campaigns can work.
- If municipalities us low flow toilets, an extra dollar on their water bills or other small efforts can make a big difference.
- Some incentives work against water quality goals
- States adjoining us have different water laws – water is being held back from this state – tribal pipelines etc. MO has no laws to stop that and it is dependent on politicians fighting to solve the issues.
- Tri-state meeting in Spgfield- communities talked about raising water rates and death threats to families. Efficiency conserved 60% of water use. This may be a way to go in distribution to end users. Upgrade old infrastructure. Joplin – looking at Greenville, KS using low-flow toilets and showerheads and rebuild that way using green infrastructure.
- Precision agriculture works b/c saves on inputs and increases efficiencies
- Roads are a big problem. Build them right the first time even if more expensive but have longer life. Biggest problem with low water crossings.
- Integrate conservation with agriculture
- Gravel mining practices or lead mining. No trucks were covered in the past and this is a simple, inexpensive, common sense mitigation to improve things

- Education – images are important such as native American with a single tear on his face; tablespoon of water with only two drops drinkable. Get an image to the public. Picture is worth a thousand words. This is forefront of changes that have taken place in the environment. We think we all know what is going on with lots of feelings and opinions. Get the interest groups that are obstacles to become invested in the solutions. Scattering of habitats is a problem.
- Because water quantity is a huge issue – MO lacks a legal framework for water quantity and quality internally and for interstate waters. Can't protect what we have from irresponsible users within the state as well.
- State needs to step up. The state is responsible.
- The state seems like it has an endless water supply, what ends up back in the water through industrial and water systems. How can you make people associate with these things.
- Agencies not brave enough to drive home an idea that may not be totally politically correct. We need a crisis image especially since we have had more rainfall in last few years.
- Well water depth is down in Bootheel about 30 feet below previous levels. See if we can make this appear the crisis it is.
- Challenge in initiative changes with administrations. Politicians come in every 4-8 years.
- How do we get things going? Push harder to work with other groups for a state water plan. We should not wait to make a state water plan under a time when there is pressure; make a good plan now when it is not a crisis.
- ALOT group. MO is polarized regarding the Missouri and Mississippi River issues and very charged up.
- We are the conservationists. We are not the villains / how can we overlap in the venn diagram? Show them a place for the farmers/ industry/municipal interests. These groups may be on the opposite side of conservation because of lobbying, but the individuals may not feel that way.
- Value ecosystem services for what they provide. Economic values associated with it. Downstream users pay for upstream habitat in South America.
- Things are not your crisis – make it worthwhile to the person creating the problem.
- Ecosystem credits – why shouldn't downstream users pay for maintaining supplies. People think water should be free. Should be some trading of credits for benefits.
- Understand hierarchy of need. If a person is having a hard time economically we need to understand where they are coming from. Understand where they are on the social and economic ladder.
- Know who is delivering the message. They need to be able connect with the person/group and understand where they are coming from.

- Not the “I know best” message.
- How do we interact with grassland vs. wildlife? How do we deliver the message that can come from conservationists – must be by partnering with other groups as a way to have the groups will listen.
- Work within the system not to be adversarial. Work together more widely.

Step II - Question #2.

What are the actions on which Missourians can work together to meet Missouri’s water resource needs for Fish and Wildlife Habitats

- Develop a comprehensive state water plan. Include for all water interests.
- Expand the public school program. The program MDC presently has is good. Want to get to 100% school districts. In ALOT group discussed that there was not an educational department in Ag. Some schools don’t requests the programs even if they are available. Education for children is an entirely different system than adults. The ad campaign is more expansive than with children
- Change the regulatory framework. Implement it differently that is happening now and how do we enforce it.
- Communication with landowners of all types
- Private company in Meramec “Kraft Foods” project good example
- Hard to involve society in meetings; not allowing public to be involved
- How do agencies integrate priority watersheds; spatial data layer and compact these together to show where all those things overlap. Difficult to keep up to date. Find the places that are the priority for everyone.
- Big city areas. Some cities know when they will run out of water. Covenants about yards. General action is to use water when you have it.
- Hydrologic fragmentation and habitat fragmentation are both problems. May come back to education in using watersheds.
- Pull groups in and get together to see how to move forward.
- Make this very simple to say “what are wildlife needs”. What is the key – Water. What are wildlife’s water needs.

Summary of Actions (5-8 Word)

- Develop integrated state water plan with all interests
 - Change water regulatory framework (overlapping agency priorities)
- Expand the school programs like the Discover Nature program
- Develop an ad campaign – overarching
 - Wildlife water needs
 - Water is the key

- Communication with landowners
- Involve society in Priority Watersheds through focus groups/ Ecosystem Credits
- Engage the general assembly and municipal officials in comprehensive water issues (continuing education for them due to turnover)
- Better incentives for conservation landowners (align agriculture/inner city greenspace/urban forestry etc.)
- Politics – fully involved in state water plan/ communication
- Politics – fully involved in state water plan/ communication

Top three choices

- 1. Develop a comprehensive/ integrated statewide water plan**
- 2. Engage Missourians in dialogue for sustaining our water resources**
3. Further educate Missourians toward water quantity and quality issues

Water for Power Generation

Small Group Discussion and Actions

Facilitator: Joe Engeln MDC
Recorder: Dan Witter DJCase

Participants

Mike Smith MDC
Warren Witt Hydro Operations for Ameran Missouri
Steve Jarvis Missouri Forest Products Association
Janet SternbergMDC
Dr. Susan Flader University of Missouri, MO Parks Association

3-Step Small Group Process

1. Obstacles or challenges for meeting Missouri's water resource needs, particularly regarding power generation.
2. Actions where groups can work together to meet on water/power generation.
3. Everyone gets 8 votes and these can be spread across as many

Concept was to spread all ideas, rather than have 10 groups discuss same issues.

STEP 1:

Obstacles/challenges to Hydro-Power Operations:

1. Missouri has very little elevation change. Power generation directly proportionally to flow rate; we're blessed with tons of water, but don't have much elevation change.
2. Cost of the infrastructure.
3. Remaining available sites for power generation are greatly limited.
4. Lack of technology (or newly-emerging technology) to make use of free-flowing waters; hydro-kinetics. Technology is called kinetic energy—this technology has a ways to go...so this would be kinetic, versus dynamic (elevation). Turbines on the bottom of river catch flow on the bottom of river; consider how best to place (and number) of turbines necessary to capture flow. There is research on traditional hydro-power generation, but little on this idea of sub-surface turbines. Too, issue of barrage navigability viability is a concern with location and size of these submerged turbines, and recreational boaters may be prohibited from moving in the vicinity of these sub-surface turbines...so there are social and economic tradeoffs and issues with these new technology. Small-scale hydro-kinetic power may be feasible in Ozark streams, but all still very much in evaluation and testing. Yet again, trade-offs.
5. Structure in water obviously change many things—stream-flow.
6. Regulatory process to develop these energy sources is formidable.
7. Missouri's desire for free-flowing streams.
8. Funding sources for new technologies are limited.
9. Limitations for bio-fuels; these use substantial quantities to create.
10. Balancing power generation and flood control.
11. Lack of information on how new technologies affect fisheries (hydro-kinetic energy, for example).

12. Merging the air quality interests with water quality interests—establishing this balance is elusive.
13. Full understanding of all the tradeoffs that come with power generation.
14. Are we to point where we have ample or short supplies of power, and implications for coal, nuclear—these questions impact what energy sources will be utilized.
15. Note that the other use of water for power generation is cooling purposes,; and there are thermal issues of reintroducing warmed water—and also taking water in—versus the direct use of water to generate power).
16. Taking or use of water, and not returning the same quantity to the environment (for example, there is a net loss of water at nuclear plants through evaporation/cooling.
17. This is an extraordinary time, in that Missouri is experiencing a stable (or in a few cases) falling demand for electricity. That said, it would be unrealistic to think that demand won't rise.
18. Marcellus Shale (gas and oil reserves) and hydro-fracking hold potential (and issues) for Missouri. A sand is added to water (along with other chemicals); this mixture is pressure-pushed into rock, and pushes deposits toward central wells. Some of this slurry remains in the soil. Moreover, what do you do when the water emerges, because it's mixed to move oil...what are the implications.
19. Energy operations can impact recreation and tourism in both negative and possible ways—particularly for economic development.
20. Bio-fuels and use of non-natives; as we move into biofuel, there may plants (“sterile”) introduced for biofuel production that may have significant impacts on native flora/fauna.
21. Water quantity definitely becomes an issue when we consider ethanol production.

STEP 2:

What are the big-/small-scale recommendations **ACTIONS** that we can make (to policy makers, to each other as publics attentive to water).

Discussion

1. Thinking at the biggest picture level, we need to know what water inputs are for various forms of energy generation so choices can be educated—**not all kilowatt hours are created equally.**
2. Typically, people who attend energy meetings are oil and gas industry (the regulated entities)—how do we develop the framework to have energy discussions that feature water use. Again, combining regulatory and non-regulatory framework, how do you get the necessary stakeholders at the table. How do we establish this framework?
 - a. Combine environmental groups into a balanced discussion group—try to blend passions; folks with air passions need to interact with water interests, and energy producers need to join these groups in discussion as well. There are other interests, as well: recreation, tourism....a holistic concept—watershed-based planning—how do we create this matrix and framework to enable this discussion?
 - b. Perhaps the foundation for this discussion group is the baseline.
 - c. Is it possible to get all these interests into the same room.
 - d. Is the watershed, then perhaps the geography around which people can assemble? Though be aware, that power generation on the Osage watershed affects citizens outside the watershed.

- e. In summary, many things cleave to watersheds, but energy is one of those that definitely go beyond watersheds.
- f. Watershed/stakeholder groups perhaps should be carefully selected, balanced, and that would commit time (much more a participatory model where widely divergent attentive publics are selected and invited to work together).
- g. Education is, of course, central to this model—the start may be a better understanding of the trade-offs.
- h. Perhaps a series of meetings (promotion of coordination and collaboration) to get everybody on the same page;
 - i. Economics
 - ii. Stakeholders, attentive publics, potentially affected interests
 - iii. Later break this into a watershed focus
- i. Is there any one source that indicates how much energy is made in the state—this currently is shared on the web site. This clearinghouse could be foundational to common educational level.
- j. DNR finished round of 4 stakeholder meetings with Division of Energy—asking what should the Division of Energy do or be.
- k. Granted, DNR is perhaps more compartmentalized than desirable; no making attempt to identify those priority areas that the technical staff that should be collaborating. Think of the reality of multiple commissions (21 commissions was mentioned)—these issues are very technical, and more complicated because of the separation. Are we moving toward an “Environmental Commission” that, at root, creates the framework that acknowledges the interdependency of water, air, other resources.
- l. Regulation only goes so far; so how do we get other stakeholders on a sustainable fashion to the places that policy is made. Oil and gas are examples, where we’re seeing more and more out of state companies coming to Missouri to extract resources. Missouri has no fee for such activity. Right now, other than oil and gas council members are at meetings where environmental impacts are part of the discussion.

Proposed POWER GENERATION Actions

PRIORITY ACTION 1: Create a common currency of understanding and methods to both share with and engage stakeholders on the relationship between energy production and the environment (i.e., develop a communications strategy; identify stakeholders (attentive publics, potentially affected interests); expect consistent, committed stakeholder participation).

PRIORITY ACTION 2: Adopt new production technologies that are more efficient with water use and have environmental enhancements; e.g. pursue with Corps of Engineers retro-fitting Missouri’s major flood storage dams to increase power production efficiency and environmental enhancements.

ACTION: Foster energy efficiency, and pursue cost recovery for energy efficiency programs.

ACTION: Promote research for other energy technologies (e.g., low-head hydro research, kinetic technologies, biotechnologies, others); accompanying this work should be the supporting research and analysis that asks what trade-off these technologies involve.

Water for Agriculture

Small Group Discussion and Actions

Priority Actions:

1. Establish, incentivize and evaluate best management practices (BMPs), strategies, and water quality goals at the watershed level
2. Recognize and showcase the environmental success of innovative farmers through a local community partnership based approach (i.e., Farmers Teaching Farmers)
3. Incentivize innovative crop/food production and water quality practices
4. Embrace the three-legged approach to address social, economic and biological aspects of agriculture
5. Change public policy to incentivize water quality

Obstacles:

- How to define agriculture – what size producers – CAFOs, family farms
- How to define agricultural water
- Groundwater use
- Water quantity for agricultural production
- Ag water returning to system (what we do with it)
- (No full-time producers in group, but some experience and interaction represented)
- Agricultural use contribution to hydrologic cycle
- Essential ingredient for food system – cannot live without it
- Biofuels also produced as part of agricultural use of water
- No reason to perpetuate conflicts between ag and environment – pursuit of production uses water inputs ,without intentional degradation
- Lack of knowledge of conservation by ag producers is challenge to environmental protection
- Different perceptions of ag production by type of product – vegetables v. feedstocks v. fuelstocks, etc.
- Hard to think about valuing water (conservation, economic use) in time of plenty of water
- Ag practices may impact water – e.g., farming up to the edge of streambanks
- Global markets change local ag situation
- Awareness and attitude hard to change – hard to consider generations into the future – need long term view
- Lower sperm count in Midwest does not raise attention – related to ag?
- View of science as beneficial or impediment that should defer to learning age
- Education is key to making ag production aware and environmentally compatible

- Urban/rural division needs to be understood and worked through
- Need to take meetings like this to producers because they won't come here
- Marketing practices that work through demonstration
- Farm bill provides some tools that could solve problems, but participation is still marginal
- Local producer decision making will be made by producers who are very independent

Summary

- Getting ag producers in the room, tap into next generation of education
- Accountability is missing
- Economizing clean water – financial value of water
- Agency and educators don't understand how producers think, independent (won't accept food stamps even though they qualify), production needs to be economic, need to manage nonpoint source pollution
- How to get around independence aspects of farmers
- Disconnect between water and how it affects peoples' lives, especially in water-plentiful Missouri
- Have made enormous progress, but disconnect between best practices and implementation, and resources to do it
- Realizing the financial value of water and how use of water affects rest of system, traditional methods trusted to be productive and change comes slowly (independence overcome through others experience of other similar producers), education must come through other farmers
- Value of micromanaging nutrients can extend to water use practices, treat water like NPK
- Hard to recognize connectedness of farm to downstream waters
- Changes in agriculture can be dramatic and respond quickly to new conditions, present new practices as challenges
- Obstacle is too much water – don't value it – water is not significant part of economic inputs – farm bill could incentivize good use of water resources
- Dead zone is not connected to local situations
- Development of 2012 farm bill, especially conservation and commodity, may set national policy
- NRCS does not share data on practices, so good works hard to share
- Isolated decisions based on political boundaries

Actions:

- Recognize and show case successful
- Farmers teaching farmers
- Shift meetings to local areas with small groups of farmers, work individually

- Evaluation of practices needs to be continuous
- Change public policy to incentivize water quality problem solutions (CRP, others)
- Implement locally led community based watershed efforts
- Social, economic, and biological aspects of agriculture all need to work together in solutions
- Innovative water use to improve bottom line
- Establish best management practices implementation strategy and goals for each watershed at the local levels
- Subsidize innovative crop and food production
- Recognize and showcase the success of innovative farmers through a local community partnership based approach (farmers teaching farmers)

Reporter: Lorin

Parking lot:

- Monsanto
- Swine lagoons
- Farm bill
- Carbon credits
- SWCD effectiveness

Group:

- Darrick Steen MDNR
- Wallis Warren Ozark Fly Fishers
- Lorin Crandall Missouri Coalition for the Environment
- Paul Calvert MDC Fisheries
- Larry O'Donnell Little Blue River Watershed Coalition
- Charlene Waggoner Greenway Network
- Mike Hoffman MDC Forestry
- Mark Flaspohler Ducks Unlimited
- Mike Schroer MDC Wildlife
- Kelly Srigley-Werner FWS
- Steve Johnson MO River Communities Network
- Dan Downing Facilitator
- John Madras Recorder

Clean Groundwater

Small Group Discussion and Actions

Attendees:

Ginny Wallace, DJ Case-Facilitator
Scott Kaden, DNR-Recorder
Kevin Roberson, Friends of Rock Bridge SP
Gene Gardner, MDC-Presenter to larger group
Patricia Schuba, Labadie Environmental Org
Meagan Prestegard, DNR
Jan Weaver, MO Environmental Education Assoc.
Leanne Tippet-Mosbey, DNR

Obstacles:

Ignorance about the resource (scientific questions that still need to be asked) as well as ignorance of the public and policy makers.
Lack of education of the public who utilize this resource (where does the water come from and where does it go when we are finished using it).
Individual rights to use the water
Lack of incentive for conservation and protection of this resource and interconnectedness between other water issues
Lack of effective ways to communicate key issues (especially quality) to local users
Groundwater is out of sight and out of mind, both how water is produced and disposed of
Term limits for policy makers (by the time policy makers are educated there term has expired)
Lack of enforcement
Make sure there is a greater effort to educate stakeholders at the basic level
Perception of unlimited supply
Not addressing problems and passing them on to others (avoidance, complacency, it has always been that way)
Discourse in public forums (talk radio, coffee shops)
Information overload (sometimes too much inaccurate information is passed along as truth)
Emotion
Gravity (eventually water will find the lowest point unless there is an impervious barrier)
Political will, leadership and lack of funding for regulations and enforcement
Identify stakeholders who are directly affected by issues
Difficulty for the public to be aware of the development of new regulations, public meeting/hearings, council/commission meetings, etc.

Actions:

More interaction with stakeholder groups

Connect people to their groundwater through community targeted efforts (education and training on how to utilize and protect their resources, case studies they can relate to)
Regional councils that are familiar with issues in their area and give input to statewide organizations
Ad campaigns to highlight the benefits and problems associated with groundwater usage
Enhance the role of CFM to work with legislators, state agencies, industry and youth
State Interagency committee on education (departments who have an environmental education directive)
State environmental education advisory board (includes industry, state agencies, non-profit org) with a specified education mission
Encourage CFM members to run for local public office (city council, school board, county commission, etc)
Encourage environmental education of teachers (content and methods) through local school boards and Department of Education who pass this knowledge on to their students
Provide additional resources (possibly through general revenue or restructuring of fees) for the enforcement of existing regulations
Participate in restructuring of DNR's Water Protection Program and associated fees

Priorities:

- 1) Coordinated educational/outreach efforts to connect people to their groundwater through an interagency education committee, state environmental education advisor board, regional/community stakeholder groups, coordinated ad campaign and other educational opportunities.
- 2) Participate in restructuring of DNR's Water Protection Program and associated fees
- 3) Provide additional resources (possibly through general revenue or restructuring of fees) for the enforcement of existing regulations
- 4) Enhance the role of CFM to work with legislators, state agencies, industry and youth as well as encourage CFM members to run for local public office (city council, school board, county commission, etc)

Clean Rivers, Streams, and Lakes

Small Group Discussion and Actions

1. Blueprint for MO Water Future – pot. Commission on Mo Waters (Incl. representatives of all Missouri Water Users & uses. I.e. Regulations, water use, recreations, education)
2. Increased efforts for water quality and quantity outreach and education (statewide campaign, reallocation of resources for outreach and education, charismatic water icon)
3. Actively and Enthusiastically Support DNR's Watershed initiative
4. Support Missouri's Stream Team Association
5. Establish Watershed Groups and ensure they talk. (funding issues).
6. Targeted funding towards watershed groups.

Part One:

What do you think are the obstacles to meeting MO's water resource needs for clean rivers, streams, and lakes?

Lack of connection between their actions and the end result. People who think their vote doesn't make a difference. i.e. pesticides right next to the stream, throwing non-native worms into the stream. *Another person agreed with this. Connectivity and communications are a big issue. Another person echoed this, especially the communication issue. Another person said we need to get down to a sub watershed basis—needs to be at a level that farmers can get to. Education, connection, and neighbors understanding what happens to each other/connection can happen at the table at the same time.*

The challenge is public understanding. We work all the time on education of the public, but translating general understanding into actions is a challenge. Also balancing economic growth and watershed health.

Understanding the issues and what efforts we can do to get the biggest bang for our buck. The issues have not been solidified and are not all together on how we should get there.

Unwillingness to cooperate. (may be linked to education) People only see one side of the story.

Long term affects.....see water quality more incorporated with planning. The costs should be incorporated in the initial prices.

The notion of understanding and putting some sort of price tag on cumulative affects of individuals actions in terms of downstream cost. Hopefully that costs will affect behavior.

After 50 years of working in metropolitan St. Louis, trying to keep the public focused on the value of the Meramec water basin. Continually reminding and educate the public that we are making progress. Also, educating youth and policy makers. Education and outreach are the hurdles that we have to address in the long run.

Education is critically important. Economic impacts of wastewater facilities in small communities. Lack of ability to bring together the appropriate people to the table. People need to be at the table talking about nutrients. Once you get people to the table, then you have to try to find compromise.

As a 7th generation farmer, we haven't dealt affectively. Society in general doesn't understand or relate to their access to water. What we don't have is an understanding of how to get people to own that problem. You can show people how to do all sorts of management things, but you must do the watershed management.

Education awareness understanding. These are all part of the long term solution. Funding is always an issue trying to accomplish goals, but if we understand that then we can do something about it. Agree with Dave and Mary's comments from the panels. You need to have a table where people live—you need to get into the community. Also she supports allowing locals to set priorities vs. feds setting priorities.

People's concept of where water comes from---most people think it comes from a plastic bottle. People don't value water in public waterways.

Finding a way to inform the public and public officials so that they develop a passion about caring for our water resource. It is much more cost effective to remedy the issue upfront instead of trying to fix it down the line. Finding effective education tools.

The political process itself it the biggest obstacle. If we don't start trying to control the political process, we never will. i.e. Every four years DNR's upper management, MDOC's sales tax, Ozark Water's sewer company new technology (overregulation without substantiation). We have to learn how to coexist with agriculture, business, ect. Also, EPA, depending on which party has power, subjects us to different methods.

Part Two:

What are the actions we can take?

The establishment of watershed groups. Make sure every watershed has a group. Establish a network of watersheds. (You have to provide sustainable funding to keep the watersheds going.) Perhaps a stream team group. Targeted funding allowing watershed groups to go forward and work on action items (restoration to be able to get done).

What if there was a pool of funding only available to watershed groups.

There is a need to link the watershed groups to the political process. If you build a watershed consciousness, then the next instinct is that we need to talk to the mayor, and we need to set up a committee to influence decisions about it...*(watershed groups are kind of preaching to the choir says one person)*

Having access to the decision makers and getting them involved is very important.

Better education.
Jack the rates up.

Getting our leaders to care and understand it. Top down is one way to do it. Law mandated water conservation.

Encourage that money be spent more on education and awareness and not laws. Shifting resources.

State-wide campaign. Develop a charismatic icon.

Put it in the curriculum of the schools.

Enthusiastically support DNR's watershed plan.

Supporting the Missouri stream team Initiative.

Pool of money aside competitively available for watershed groups. Allow this to be run by Stream Team or DNR.

Need to incorporate clean water in our economic models.

Involve appropriate stakeholders in discussion.

Recommend that there is Creation a blueprint for missouri's water future. This would allow all the stakeholder's to come together. A governor appointment a commission that looks at everything water related.

Extra Discussion:

There appears to be a lot of concern from one gentleman who says that he has been to several of these summits and that he never sees actions from these summits.

Top down and bottom up approach could go together. There were 13 people in the group, plus one recorder and one facilitator.

Flood Management

Small Group Discussion and Actions

Flood Management

Robert Stout – MO Dept of Natural Resources (Facilitator)

Audrey Beres – MO Dept of Conservation (Recorder)

Mike Kruse – MDC

Jim Low – MDC

Dennis Figg – MDC

Danelle Haake – MO Botanical Garden/MDTWC and River des Peres

George Sorvalis – National Wildlife Federation/Water Protection Network

Teresa Connelly – Labadie Environmental Organization

Richard Ash – Conservation Federation of MO

Glenn Chambers – CFM

Bruce Morrison – Great Rivers Environmental Law Center

Shane Barks – USGS

Steve McIntosh – MO DNR

Harold Deckerd – NRCS

Susan ? – NWF

Mike Scalliou ?

1. Obstacles to meeting Missouri's water resource needs for flood management
 - a. The COE. The MRMT (?).
 - b. Education of decision makers (especially local govt – commissioners) – uninformed or misinformed
 - c. Elected officials and decision makers UPSTREAM – elected officials making decisions without information, or even in spite of information from experts
 - d. Congressional funds being appropriated for projects that are detrimental to flood management.
 - e. No discussion on benefits of flood plain management – worldview that floods are bad
 - f. Short term memory – we don't learn the lessons from our flood events
 - g. Agriculture is not at the table
 - h. The view that this is a zero sum game – agriculture and other values can coexist
 - i. We continue to build infrastructure in the flood plain
 - j. Misguided priorities – funding is misdirected by special interests
 - k. Prevention upstream– we need to change where the water goes in headwater areas when it rains
 - l. False dichotomy – infrastructure vs. wildlife
 - m. Lack of national plan for developing our water resources – earmarked, local projects
 - n. Lack of oversight/coordination/regulation over MO River levee systems in the floodplain
 - o. Building in flood plains – lack of leadership to prevent it

- p. No accepted way of valuing ecosystem services of flood plains
 - q. Lack of state leadership and too much deference to the COE
 - r. Lack of understanding that floods are normal in the life of a river
 - s. Lack of the river's access to the flood plain
 - t. Public education
 - u. Education and planning for trends towards extreme weather events
 - v. Rainfall – structural limitations to our systems
 - w. Sediment that is brought by flooding
 - x. Increased commodity prices reducing cover on farms upstream
2. What are the actions in which Missourians can take together to meet our water resource needs for flood management?
- a. Preserve wetlands
 - b. Stop channelization
 - c. State flood plain authority/legislation
 - d. Gather all the stakeholders to develop a long term approach
 - e. Tools for understanding upstream and downstream impacts of decisions
 - f. Comprehensive planning and fully-funded action
 - g. Implement management practices to mitigate impervious surfaces and runoff
 - h. Ensure people stop relying on others to protect their interests when you build in a flood plain
 - i. Governor's office take the lead to get all parties to the table to find acceptable solutions
 - j. Develop a tool to calculate costs and benefits to decisions/projects
 - k. Market a cost benefit analysis tool to Congress for their appropriate process
 - l. Legislation which enables the creation of cross-jurisdictional authorities for watershed management
 - m. Hold legislators accountable
 - n. Be willing to invest in removing infrastructure from the flood plain
 - o. State agencies put money into educating general public about wetlands and flood plain
 - p. Make national flood insurance program more actuarial to send market signals
 - q. Expand the floodplain and restrain development
 - r. Increase ability of farms to hold more water – green infrastructure
 - s. Make environmental protection/restoration a driving force of planning
3. PRIORITIZED actions
- a. Develop tools to understand and evaluate upstream/downstream impacts of decisions**
 - b. Expand the floodplain and restrain development**
 - c. Preserve and restore wetlands TIED WITH Gather stakeholders to develop long-term approach
 - d. Governor's office to take the lead to get all parties to the table

- e. Ensure people stop relying on others to protect their interest when building in the floodplain
- f. State put money into educating the public about floodplains.wetlands
- g. Increase the ability of the land to hold water (vegetative solutions)
- h. Make environmental protection a driving force of planning
- i. Legislation to enable cross-jurisdictional authority for watershed management TIED WITH develop a tool to calculate costs/benefits to decisions/projects TIED WITH State floodplain authority/legislation TIED WITH Stop channelization.
- j. Implement management practices to mitigate impervious surfaces and runoff TIED WITH Hold legislators accountable TIED WITH Market a cost/benefit analysis tool for Congress for appropriations process
- k. Comprehensive planning and fully funded actions TIED WITH Make flood insurance more actuarial to send market signals TIED WITH Invest in removing infrastructure from floodplains